

(12) **UK Patent Application** (19) **GB** (11) **2 187 317** (13) **A**

(43) Application published 3 Sep 1987

(21) Application No **8704295**

(22) Date of filing **24 Feb 1987**

(30) Priority data

(31) **8604622**

(32) **25 Feb 1986**

(33) **GB**

(71) Applicant

John Barr Ayton,

181 Crow Road, Broomhill, Glasgow, Scotland

(72) Inventor

John Barr Ayton

(74) Agent and/or Address for Service

Murgitroyd and Company,

Mitchell House, 333 Bath Street, Glasgow G2 4ER

(51) INT CL⁴

G07C 1/20 G08B 25/00

(52) Domestic classification (Edition I):

G4H 14G 60 NP

G4T CA

U1S 2184 2188 G4H G4T

(56) Documents cited

GB A 2116808

GB 1414119

WO A1 85/01582

GB 1604836

EP A2 0125143

(58) Field of search

G4H

G4T

H4L

Selected US specifications from IPC sub-classes G07C

G08C G08B

(54) **Security system**

(57) A security system employs a radio tag and a plurality of radio tag receiving heads positioned at various locations. The radio tag is activated when positioned close to a reading head. On activation the radio tag transmits an identification signal which is received by the reading head and passed to a central processing means which may display/record it together with location and time, or may control access.

GB 2 187 317 / 1

04553.37-04235

 $1/2$

2187317

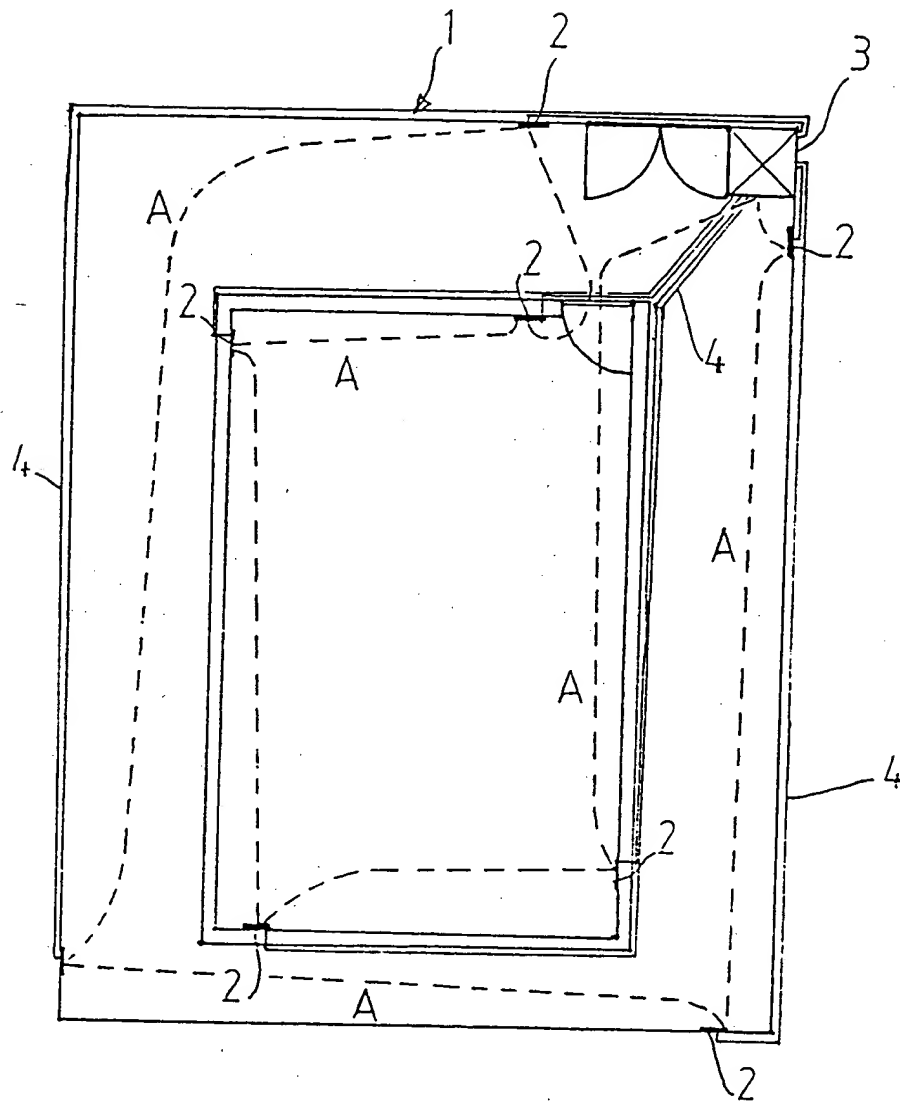


Fig.1

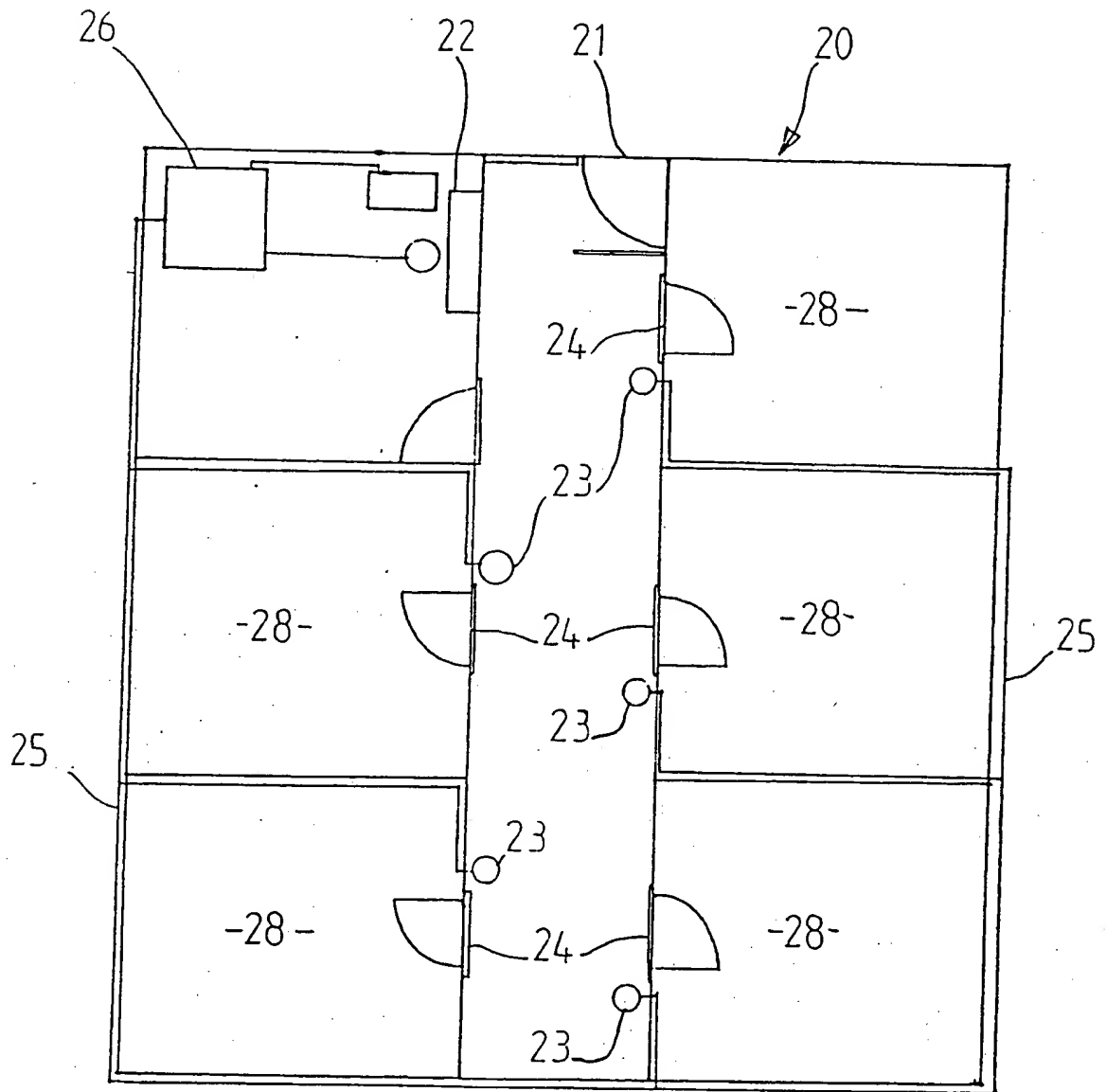


Fig.2

SPECIFICATION

Security system

5 This invention relates to security systems.
 Security patrol firms often wish to know if their staff, who may be working alone in remote premises, are carrying out their patrol duties correctly and visiting all parts of the premises at regular intervals.
 At present, checks may be carried out by a supervisor calling at the premises at random intervals. However, this involves the supervisor in much time consuming travelling between premises, normally during unsociable hours, with subsequent expense to the firm.
 Alternatively, keys are provided at various sites around the premises. The patrolman is given a clock-driven tape device in which he inserts the keys as he visits the various key sites around the premises. The tape then provides a permanent record of the patrolman's movements.
 However, the keys are easily removed, either by vandals or by unscrupulous patrolmen who can later claim they patrolled the premises but were unable to find the keys while, in reality, they remained in their office or hut.
 Also, remote monitoring of a patrolman's movements is not possible and if, for example, a supervisor visiting a large site wishes to locate a patrolman he has no indication of the patrolman's present position on the site.
 An object of the present invention is to obviate or mitigate these disadvantages.
 According to the present invention there is provided a security system comprising a portable radio tag and a number of radio tag reading heads at various locations, the radio tag being activated when located adjacent a reading head and emitting an identifying signal which is received by the reading head and passed to central processing means.
 The central processing means may be provided with means for displaying or recording the identifying signal, the time the signal was received, and the location of the tag reading head which received the signal.
 Preferably, the central processing means is situated in a central control office or vehicle.
 Preferably also, the link between the tag reading head and the central processing means is a hard link such as a wire.
 Further according to the present invention there is provided a method of access control comprising providing an operator with a radio tag, locating a tag reading head adjacent a barrier having remotely operable locking means, the operator positioning the radio tag adjacent the reading head such that the radio tag is activated by the reading head and emits an identifying signal which is received by the reading head and passed to central processing

means, the identifying signal being analysed and, if the identifying signal is acceptable, means being activated to unlock the barrier.

Preferably, the system is used in high security premises where the movements of personnel within the premises are monitored or restricted.

Embodiments of the present invention will now be described, by way of example, with reference to the accompanying drawings, in which:—

Figure 1 is a plan view of a factory premises where a security system according to the present invention is in use; and

Figure 2 is a plan view of a building where an access control system according to the present invention is in use.

Referring to Fig. 1 of the drawings, factory premises, shown generally at 1, has a number of reading heads 2 fixed in various locations around the premises 1. The reading heads 2 are in the form of receiver/transmitters and transmit an activation signal at 132 kHz. Each reading head 2 is connected by wires 4 to a central processor located in, for example, a gatehouse 3.

A security patrolman (not shown), based on the premises, is provided with a portable radio tag (not shown). The radio tag is programmed to emit a carrier signal at 66 kHz when activated by the signal from a reading head 2. The signal emitted by the radio tag identifies the patrolman and may carry other information.

As the patrolman makes his way around the premises 1 following the route shown by dotted line A he positions the radio tag adjacent the reading heads 2 as he visits each reading head location.

When the radio tag is activated adjacent a reading head 2, a signal is emitted by the tag and received by the reading head 2. The signal is passed to the central processor which records the location of the reading head, the time, the date, and the identification of the patrolman.

The central processor relays the information to a computer which can produce a print-out of the information, and also, if required, a graphic illustration of the path followed by the patrolman showing the various locations of the reading head 2 on the premises 1 and the times of the visits to the locations.

Referring now to Fig. 2 of the drawings, a high security area 20 is provided with an access control system. On entering the area 20 by the door 21, personnel are provided with a radio tag which is capable of emitting a signal which identifies the individual.

A plurality of reading heads 23 are located at doors 24 providing access to rooms 28 within the security area 20.

The reading heads 23 are linked, by a wiring network 25, to a central computer 26 which provides a display for a security guard

at the desk 22.

When a person wishes to enter a room 28 the radio tag is presented to the reading head 23 outside the door 24 of the room 28. The reading head 23 activates the radio tag which emits an identifying signal which is received by the reading head 23 and passed to the computer 26. The computer determines the location of the reading head 23 and the identification of the radio tag which identifies the person carrying the tag. From this information, it can be determined if that person is permitted access to the particular room 28. If the person has the necessary security clearance the door 24 is unlocked to allow the person to enter the room 28.

Modifications and improvements may be made without departing from the scope of the invention.

20

CLAIMS

1. A security system comprising a portable radio tag and a number of radio tag reading heads at various locations, the radio tag being activated when located adjacent a reading head and emitting an identifying signal which is received by the reading head and passed to central processing means.

2. A security system as claimed in Claim 1, wherein the central processing means is provided with means for displaying or recording the identifying signal, the time the signal was received, and the location of the tag reading head which received the signal.

3. A security system as claimed in either preceding claim, wherein the central processing means is situated in a central control office or vehicle.

4. A security system as claimed in any preceding claim, wherein the link between the tag reading head and the central processing means is a hard link such as a wire.

5. A security system as claimed in any preceding claim, wherein the radio tag includes information relating to the central processing means, information relating to the carrier of the radio tag and to his status.

6. A method of access control comprising providing an operator with a radio tag, locating a tag reading head adjacent a barrier having remotely operable locking means, the operator positioning the radio tag adjacent the reading head such that the radio tag is activated by the reading head and emits an identifying signal which is received by the reading head and passed to central processing means, the identifying signal being analysed and, if the identifying signal is acceptable, means being activated to unlock the barrier.

7. A security system substantially as hereinbefore described with reference to the accompanying drawings.

8. A method of access control substantially as hereinbefore described with reference to the accompanying drawings.

Printed for Her Majesty's Stationery Office
by Burgess & Son (Abingdon) Ltd, Dd 8991685, 1987.
Published at The Patent Office, 25 Southampton Buildings,
London, WC2A 1AY, from which copies may be obtained.